

Module 4

Veterinary Services

OBJECTIVES

After a student completes the Veterinary Services (305) module he/she will be able to:

1. Name the agency in USDA to which Veterinary Services belongs and the agency in USDA to which Field Operations (FO) belongs.
2. Given a list of statements, be able to select the one that best describes the overall mission of Veterinary Services.
3. Select from a list of statements the one that best expresses why it is important that Field Operations inspectors report certain diseases "suspicious of being reportable" to their veterinary medical officer.
4. From a list of diseases, reportable to your veterinary medical officer and subsequently to Veterinary Services, select a minimum of three that are zoonotic (transmissible to humans).
5. List four factors discussed about bovine tuberculosis that Veterinary Services thinks would favor the complete eradication of the disease in the near future.
6. From a group of statements about the history and incidence of bovine tuberculosis, select those that are true.
7. From a group of statements about the following aspects of the tuberculosis eradication program, select those that are true:
 - a. Laboratory sampling procedures
 - b. Importance of Field Operations (FO) role.
 - c. Importance of tracebacks
8. List three factors discussed that Veterinary Services sees as hampering the tuberculosis eradication effort.
9. From a group of statements about the APHIS Bovine Tuberculosis Eradication Performance Awards Program, select those that are true.
10. Using the MPI Manual and script as references, select true statements (according to

Section 21.6) about the brucellosis Market Cattle Testing (MCT) blood collection.

11. From a group of statements about the public health significance of (transmissibility to man), and hygienic precautions to take when dealing with swine and cattle brucellosis, select those that are true.

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INTRODUCTION

The purpose of this module is to show how FSIS Field Operations (FO) cooperates with Veterinary Services in their various activities and to show what an important role the food inspector has in the disease eradication program that Veterinary Services administers. The intent is not to make you an expert at recognizing by name the various reportable diseases when seen, but rather to make you aware of your responsibility to report abnormal symptoms and lesions to your veterinary medical officer. It would then be the veterinary medical officer's responsibility to make a determination whether or not to contact Veterinary Services experts.

Your work in the packing plant is very important to the animal disease eradication effort because you work at a place in the food animal chain where often you are the first to encounter a disease process in an animal.

Remember, you are the first line of defense in bringing to the attention of your veterinary medical officer any symptoms seen on antemortem or lesions seen on postmortem that could be part of a disease entity that should be reported.

Veterinary Services (VS) and FO are both in the U.S. Department of Agriculture. VS, however, is a discipline of the Animal and Plant Health Inspection Service (APHIS), while FO is a discipline of the Food Safety and Inspection Service (FSIS). The overall mission of VS as a regulatory agency is to administer an important part of the animal health program of our nation. Primarily this means controlling or eradicating specified animal diseases already in this country. Since VS has so few personnel compared to FO, it becomes very important that FO food inspectors at the packing plant serve as vigilantes in discovering unusual symptoms or lesions.

Reportable diseases are those that are designated by VS as such in Section 21.1 of the manual. When suspected, either on antemortem or postmortem, they must be reported to your veterinary medical officer. The list of reportable diseases include anthrax, bluetongue, cysticercosis, scabies, tuberculosis, contagious ecthyma, myiasis (screwworm), scrapie, and vesicular diseases. Of these diseases anthrax, cysticercosis, tuberculosis, and contagious ecthyma are transmissible to humans.

Emergency diseases are defined as those foreign animal diseases that are not currently found in this country. They are classed also as *reportable* diseases, but reportable diseases of especially profound significance. The list of emergency diseases includes bovine spongiform encephalopathy (BSE), foot and mouth disease, rinderpest, African swine fever, hog cholera, contagious bovine pleuropneumonia, and Teschen's disease.

You will need to seek the guidance of your veterinary medical officer to obtain more definite information on these conditions, as our objective at this point of your training is not to discuss each one of the individual conditions. However, we will discuss in some depth the reportable disease tuberculosis, since the TB eradication program depends so heavily on the efforts of meat inspection. It is felt that tuberculosis is a disease that could be eradicated in the not too distant future if all key personnel, including slaughterhouse inspectors, were to maintain a vigilant attitude.

Tuberculosis is an ancient disease, as evidence of bovine tuberculosis has been found in Egyptian mummies. The eradication program started in the U.S. in 1917 when 5% of the nation's cattle were said to be TB-infected. As a matter of fact, 50,000 cattle carcasses were condemned for the disease that year alone.

Today, bovine TB is more prevalent in beef cattle than in dairy cattle, probably due to the early emphasis on eradication in the dairy breeds. The bovine TB eradication effort is becoming more dependent on efforts of food inspectors, since routine testing of cattle for TB is being de-emphasized.

Now, let's explore the methods by which you as a food inspector cooperate with VS in the TB eradication effort. Let's suppose you are performing postmortem inspection on cattle viscera and you find a lung lesion that *could* possibly be TB. What would be your action?

Your first action would be to retain the carcass and all its parts, including the lesions, so that your veterinary medical officer could review the case. As a part of this step you would want to collect and coordinate any identification information pertaining to the animal such as backtags, eartags, sales tags, etc.

Subsequently, your VMO would make an evaluation and decide whether or not specimens should be sent to the Veterinary Services laboratory in Ames, Iowa, for confirmation or non-confirmation of suspicions. The VS Form 6-35, "Report of Tuberculous Lesions or Thoracic Granulomas in Regular Kill Animals" would be utilized if these specimens were submitted to the laboratory. Please remember that you as a food inspector play such an important role because if you do not properly retain the carcass, its parts, and the lesions in question, the samples will never be submitted to the laboratory by the VMO. This would definitely impede the TB eradication program.

If specimens are found by the laboratory to be positive for TB, then VS, with the aid of identifying information FO has given them, can accomplish traceback to the herd of origin. This is and will continue to be the "backbone" of the TB eradication program. It is by far the most economical method of locating infected cattle herds. In other words, because of the high cost of routine "down the road" testing of cattle for TB and the low possibility of finding infection, Veterinary Services must rely more and more on the submission of suspicious lesions from slaughtered animals by FO personnel utilizing the VS 6-35

Forms. Your role as a food inspector is to facilitate the traceback testing effort, thereby greatly enhancing the TB eradication effort.

Veterinary services is quite optimistic about the chances of complete eradication of bovine tuberculosis and sees several factors that would tend to *favor* its complete eradication in the near future. Those factors are as follows:

1. Better procedures for testing high risk herds and areas for tuberculosis.
2. Decline in the prevalence of *Mycobacterium Bovis*, the causative agent of tuberculosis in cattle.
3. Cattle are generally slaughtered younger now, with less chance of infection spread.
4. Increased slaughter inspection coverage through laws requiring inspection.
5. Improved animal identification systems.
6. Increased federal indemnities (payments to producers for their losses), thereby enhancing the use of depopulation (total slaughter) of infected herds as a method of *eradicating* the disease rather than merely *controlling* it.

However, Veterinary Services sees certain factors that could hamper the eradication effort. These are as follows:

1. Development from time to time of other crises that divert funds and manpower from the TB surveillance program.
2. *Failure* of inspectors to detect TB lesions on postmortem or to submit those that are suspicious to the VS laboratory.
3. *Failure* to collect and submit identification devices with laboratory specimens to aid in possible traceback procedures.
4. Inadequate animal identification and record-keeping at feedlots and markets, as many of the unsuccessful tracebacks deadend at feedlots or livestock markets.

In order to more fully recognize the importance of the food inspector and the veterinary medical officer in the bovine TB eradication effort, Veterinary Services has implemented an incentive awards program, known as the APHIS Bovine Tuberculosis Eradication Performance Awards Program. Under this program, food inspectors and veterinary medical officers will be considered for cash awards as follows:

1. \$100 to be shared equally each time *mycobacterium* is isolated from a lesion found in feedlot steers and heifers. \$500 to be shared equally each time *mycobacterium* is isolated from a lesion found in adult cattle.
2. \$2,000 to be shared equally the initial time an infected herd is found as a result of the information provided VS regarding the identification of an animal with a TB lesion.

To be considered for an award, the food inspector must recognize the possibility of lesions of TB in a *regular* kill animal, collect and coordinate identification of the animal, and immediately report the facts to the VMO. Two or more cases from the same source will be considered one submission. Specimens from animals slaughtered under permit because of TB, such as reactors, suspects, animals from quarantined herds, and exposed animals being depopulated will not qualify for an award.

Now let's talk about the brucellosis eradication program and how you as a food inspector assist in this program. The accelerated brucellosis eradication program began in 1954 and has gone through many changes in the past 35 plus years. FO has had an increasingly important role in this program in that we are responsible for collecting blood samples at federally inspected plants from *all* mature cattle. The market cattle testing (MCT) guidelines in Section 21.6 of the MPI Manual define mature cattle as those bulls and cows 2 years of age or over and cows that are giving or about to give birth or those that have given birth and are *less* than 2 years old. Samples should be taken from those animals branded as reactors.

The blood samples can be taken at any adequate site, but the heart at the time of postmortem inspection is the preferred site of collection.

The blood tubes should be filled to about one-half to three-fourth's capacity for laboratory handling. Each blood sample should be placed in a plastic bag with all identifying devices (including reactor tags, if any) and sent to the appropriate laboratory. Proper care and handling of the samples is very important. Assuring that the samples are protected from freezing, moisture, and contamination cannot be overemphasized. Refrigeration at 35-40 degrees F after serum separation is important. When possible, blood samples should be mailed daily or at least every other day. Franked labels addressed to the proper laboratory are provided, as well as blood sample tubes, mailing boxes, and record forms. In plants where FO personnel are unable to collect samples, it is usually arranged through VS for a plant employee or contract technician to collect the samples under FO supervision.

The brucellosis eradication program depends very heavily on you as a food inspector and how efficiently you submit the blood samples to the laboratory for analysis. This is especially important since the number of blood samples taken at places other than packing plants is on the decline.

Before we leave our discussion of brucellosis, we should mention a few points about its

transmissibility to man. The potential for inspectors contracting brucellosis from cattle or swine is great and you should take all possible precautions to decrease the likelihood of becoming a victim of the disease. In recent years, most of the reported human brucellosis cases have been of swine origin, probably due to the concentrated bovine eradication effort of former years. When performing routine postmortem you should practice sound hygienic principles to include frequent washing of the hands, and avoiding as much as possible open cuts in the hands through which the bacteria could gain entry. Also, you should strive not to be splattered in such areas as the eyes and mouth with blood and reproductive tract fluids. You should not place your contaminated hands around your mouth at any time. Although you cannot totally eliminate this hazard of your profession, you should always be aware of the things you can do to decrease chances of infecting yourself.

This concludes the introduction to the Veterinary Services module and the FO-VS cooperative effort in disease eradication.

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Veterinary Services

SUPPLEMENT

Veterinary Services Organization, Function, and Emphasis

1. What is the name of the agency in USDA to which Veterinary Services belongs and what is the agency in USDA to which FO belongs?

2. From the following list of statements, select the *one* that *best* describes the overall mission of VS. Make your choice with an X.
 - _____ a. To evaluate animal drugs and to determine whether or not their tolerances are in accordance with Food and Drug Administration standards.
 - _____ b. To keep foreign nations to which the U.S. exports informed of the presence or non-presence of certain animal diseases in our population.
 - _____ c. To function as a regulatory agency to administer the animal health program of our nation, by focusing primarily on controlling or eradicating specified animal diseases already in this country and for keeping emergency or foreign animal diseases from spreading should they gain entry into the U.S.
 - _____ d. To carefully scrutinize at all times the exotic animal population in the U.S. and to make recommendations to the public health officials on any diseases transmissible from animal to man.

3. Using an X, select from the following list of reportable diseases those that are transmissible to humans (zoonotic).
 - _____ a. Cysticercosis
 - _____ b. Anthrax
 - _____ c. Bluetongue
 - _____ d. Scabies
 - _____ e. Scrapie
 - _____ f. Tuberculosis
 - _____ g. Contagious ecthyma

- _____ h. Screwworms (Myiasis)
 - _____ i. Swine vesicular disease
 - _____ j. Foot & mouth disease
 - _____ k. Rinderpest
 - _____ l. African swine fever
 - _____ m. Hog cholera
 - _____ n. Teschen's disease
 - _____ o. Contagious bovine pleuro-pneumonia
4. Using an X, select from the following list of statements the one that *best* explains *why* it is important that FSIS inspectors report certain diseases "suspicious of being reportable" to their veterinary medical officer:
- _____ a. Because FSIS has been assigned a primary mission of detecting exotic diseases and reporting them to the U.S. Public Health Service.
 - _____ b. Because FSIS' secondary mission is to collect disease data that can be compiled and reported by the Computerized Statistical Reporting Service.
 - _____ c. Because many times the FSIS inspector is the first line of defense in recognizing various symptoms and lesions of reportable diseases that Veterinary Services is striving to control or eradicate.

Bovine Tuberculosis Exercise

1. Which of the following statements, if any, **are true** about the history and incidence of bovine tuberculosis? (Mark your choices with an X.)

- _____ a. TB is an ancient disease, as evidence of bovine TB has been found in Egyptian mummies.
 - _____ b. Bovine tuberculosis is probably more prevalent in dairy cattle today than in beef cattle.
 - _____ c. The eradication program for bovine TB started in the early 1950's.
 - _____ d. When the TB eradication program began, it was estimated that 5% of the nation's cattle were TB-infected.
2. Which of the following statements, if any, are *true* about the TB eradication program? (Mark your choices with an X.)
- _____ a. *Routine* testing of cattle for TB, as opposed to *traceback* testing, is being emphasized more than in the past.
 - _____ b. The practice of completely depopulating TB-infected herds has been on the increase in recent years.
 - _____ c. When submitting lesions from nonreactor (regular kill floor) animals that you suspect are TB, the submission of identification devices is very important to the traceback effort.
 - _____ d. Most specimens sent from the slaughter house to the Veterinary Services Laboratory in Ames, Iowa, are confirmed to be tuberculosis.
 - _____ e. Considering cost aspects of the TB eradication program, traceback testing is much less economical than routine testing.
 - _____ f. The TB eradication effort depends heavily on FO's submission of samples to the Veterinary Services Laboratory in Ames, Iowa.
3. List *four* factors discussed about bovine TB that VS feels would tend to favor its complete eradication in the near future.
- a.

- b.
 - c.
4. List *three* factors discussed that VS sees as hampering the TB eradication effort.
- a.
 - b.
 - c.
5. From the following list of statements, select any that are *true* about the APHIS Bovine Tuberculosis Eradication Performance Awards Program. (Mark your choices with an X.)
- ☐ a. VS will give the food inspector who discovers lesions a medal of commendation.
 - ☐ b. VS will give the VMO who supervises the inspector discovering lesions a within-grade raise.
 - ☐ c. Each time *Mycobacterium bovis* (the organism causing TB) is isolated from a suspicious lesion found in adult cattle submitted to VSL, \$500.00 will be shared equally between the food inspector and VMO.
 - ☐ d. Each initial time that an infected herd is found as a result of identification (ID) information provided when samples are submitted to the laboratory, the food inspector and VMO share \$2000.00 equally.
 - ☐ e. The awards program provisions also apply to suspicious lesions submitted from TB-reactor animals.

Brucellosis Exercise

1. Using your notes from the introduction and Section 21.6 of the MPI Manual as references, select any *true* statements about Brucellosis Market Cattle Testing (MCT) blood collection. (Signify choices by marking with an X.)
- ☐ a. FSIS is *responsible* for collecting blood samples from mature cattle at

federally inspected plants.

- _____ b. Blood samples should not be taken from mature cows and bulls that are branded as brucellosis reactors.
- _____ c. Mature cows and bulls are defined as those 1 year of age or older and parturient or post-parturient cows less than 2 years old.
- _____ d. A very desirable site to collect blood samples is from the heart at the time of postmortem inspection.
- _____ e. Blood tubes should be filled about one-half to three-fourths full for sending to the laboratory.
- _____ f. It is not important to place all identifying devices in a plastic bag with the blood sample.
- _____ g. Refrigeration of samples at 35 - 40 degrees F, if being retained after serum separation, is very important.
- _____ h. Samples should be mailed to the laboratory not longer than two weeks after collection.
- _____ i. If plant employees (at their choice) or contract technicians collect blood samples, FSIS is still responsible for supervising the collection.
- _____ j. The accelerated brucellosis eradication program was started in 1917.

2. Select any true statements about the human public health significance of swine or cattle brucellosis or hygiene precautions to take when performing routine postmortem procedures. (Signify choices by marking with an X.)

- _____ a. There is no threat of a food inspector contracting brucellosis from infected cattle or swine.
- _____ b. All slaughter inspectors should be aware of the great potential for human

infection and should take all possible precautions to decrease the likelihood of contracting brucellosis.

- _____ c. In recent years, most of the reported cases of human brucellosis have originated with cattle.
- _____ d. Frequent washing of the hands when performing postmortem inspection could be a deterrent to contracting brucellosis.
- _____ e. Open cuts or wounds in the hands should be protected when performing routine postmortem inspection.
- _____ f. The eyes and mouth are not considered possible avenues of entry of the brucellosis causing bacterium from infected blood and reproductive tract fluids.